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ABSTRACT

Throughout the Chicago Public Schools systematic differences exist between the performance of children of different racial and ethnic groups. In most schools where students of more than one group are found, Asians and Whites test at higher levels than Blacks and Hispanics. When income level and school type are controlled, small differences are found in achievement levels between students of different races. These differences lie mainly in the large percentages of White and Asian students who test in the top quartile against national norms and large percentages of Blacks and Hispanics who test in the bottom quartile. Students of all racial groups in academic magnet schools and schools with competitive entry requirements perform well above norms with Asians and Whites performing consistently at extremely high levels. This analysis identifies the racial and programmatic groups of children who are excelling in the public schools and others who are failing. Overall, findings suggest that something in the educational process between grades one and four causes Black and Hispanic students to lose ground to Whites in reading, and Blacks to lose ground to Whites in mathematics. If these differences are caused by differential effects of teaching method, it is an effect in the early grades that seems to disappear. This evidence is consistent with findings that early childhood programs raise disadvantaged children's performance levels. (Contains four tables and six figures.) (SLD)

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Chicago Urban League
Department of Research and Planning

ED 404 419

CHICAGO'S TWO PUBLIC SCHOOL SYSTEMS:

STANDARDIZED TEST RESULTS COMPARED BY RACIAL/ETHNIC GROUP

James H. Lewis, Ph.D.
Department of Research and Planning

October 1990

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Executive Summary and Major Findings

Throughout the Chicago Public Schools, systematic differences exist between the performance of children of different racial/ethnic groups. In most schools where students of more than one group are found, Asians and whites test at higher levels than blacks and Hispanics. When income level and school type are controlled for, small differences are found in achievement levels between students of different races. The differences in achievement between racial groups lie mainly in the large percentages of white and Asian students who test in the top quartile against national norms and large percentages of black and Hispanic students who perform in the bottom quartile.

However, on average, students of all racial groups in academic magnet schools and schools with competitive entry requirements, perform well above norms with Asians and whites performing consistently at extremely high levels. Students of all racial groups attending schools without special programs and general or vocational high schools perform extremely poorly.

These findings suggest several important questions. To what should persistent differences in performance in competitive environments be attributed? Are students of different racial/ethnic groups within the same school taught differently? Do different racial/ethnic cultures equip children to learn in different ways? Are characteristics attributable to low income families responsible for differences in achievement outcomes? Are differences in outcomes attributable to racial/ethnic bias in the testing process?

Some of the causes of disparity of outcomes associated with racial characteristics no doubt center in the school. Others do not. To the extent that school policies or practices result in these disparities, those policies and practices must be changed so that the racial differences in achievement observed in this report decline. The success of Chicago's school reform is properly judged on schools' success in reducing achievment disparity between racial and economic groups. The clear differences in achievement levels of whites and Asians as opposed to blacks and Hispanics testify to the importance of concentrating school improvement efforts on schools and communities with impoverished blacks and Hispanics. That environmental factors almost surely interact with activity within the school to produce the racial differences observed here, argues for developing closer, and more meaningful relationships between schools and parents, employers, and community services.

For whom do the Chicago Public Schools work well, and for whom do they fail? The analysis below identifies various racial and programmatic subgroups of children who are excelling in the public schools and others who are failing.

The system works at least adequately for:

White students above the poverty line and white students in magnet schools.
Black and Hispanic students in academic magnet programs.
Most whites, and a majority of blacks and Hispanics, in academically-oriented high schools.

The system fails to serve:

White students in impoverished elementary schools without special programs.
Black and Hispanic students in elementary schools without specialty programs.
Children of all races in vocational and general high schools, but especially black children.

1. System Overview

1.1 Significant differences in academic performance exist across different racial groups in the Chicago schools.

1.2 Asians and whites perform at considerably higher levels on average than do blacks and Hispanics.

1.3 Most of the difference between white and black or Hispanic performance can be found in the lack of blacks and Hispanics in the high-performing top quartile and the preponderance of blacks and Hispanics in the low-performing lowest quartile. Whites, blacks and Hispanics are more evenly represented among the middle levels of achievement.

2. Effects of School Program Types

2.1 Students from all three major racial/ethnic groups who attend magnet programs perform significantly better on average than do students who attend schools without programs.

2.2 Blacks in elementary schools with competitive entrance requirements perform at extremely high levels, but lag somewhat behind whites and Hispanics in these same schools.

2.3 Blacks, whites, and Hispanics all tend to perform at inadequate levels in vocational and general high schools. All three groups perform at high levels in academically-oriented high schools. White students consistently outscore black and Hispanic students in most high schools.

2.4 Black reading and mathematics scores are extremely low in general high schools.

3. Income Effects

3.1 Whites tend to score slightly higher than blacks whether students are above or below the poverty line.

3.2 For blacks, whites, and Hispanics at all grade levels who attend schools having no special academic programs, students in schools with few low income students performed better than students in schools exclusively made up of low income students.

4. Pre-school Preparation

4.1 White and Asian test scores exceed black and Hispanic by significant amounts in first grade and the difference increases somewhat to fourth grade.

Introduction

One of the initial actions of the interim Chicago Board of Education when it first convened in June 1989 was to pass a resolution stating in part that the philosophy of the reform Board was that "all children can learn, given the proper school environment."[1] The statement was made at the outset of Chicago's pathbreaking school reform and was intended to dispel the perception that thousands of poor and minority children were inherently destined to fail. The expectation would seem to follow from the sense of the Board's resolution that reduction of differences in academic performance between racial groups should ensue. Indeed the educational component of the Chicago desegregation plan explicitly mandates reduction of racial differences. The 1989 school reform law also mandates a measure of equality of eduational outcomes. It states that "by the conclusion of the 1993-94 school year, at least 50% of all students -- regardless of race, ethnicity, gender or income status -- in each attendance center within the district score at or above the national norm on a standardized test.[2] Because approximately half of Chicago's schools are composed entirely of low achieving black or Hispanic students, this aspect of the reform law in effect mandates a closing of the gap between white and minority academic performance.

Until now, the Chicago educational community has not explicitly addressed differences in academic performance between major racial/ethnic groups. The reform process has rightly focused upon improving the Chicago schools for all children rather than framing problems as primarily racial issues. Why, then, is it important to identify differences in racial/ethnic group academic performance?

First, recognition of the true state of affairs is necessary to construct future educational policy, particularly when data shows a significant and consistent negative disparate impact of the status quo upon particular groups. Many districts nationwide routinely report this information.

Second, Chicago's school system has been characterized as the worst in the nation. If it is indeed the worst for some students but, perhaps, not for others, then it is important to know which groups learn even if others do not learn.

Finally, in order to evaluate the system's implentation of reform, it is necessary to first establish benchmarks against which future performance of the system may be judged. A tacit reform goal is achievement of equitable outcomes within the system. When all children are learning to their fullest capacity, there should be no systematic differences between achievement scores on the basis of race.

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[1] Chicago Board of Education, Report No. 83-0614-C05; June, 1989.

[2] Illinois School Code, Sec. 34-1.02.

Wide agreement exists that one of the most important, if not the most important means of escaping poverty is acquisition of a quality education. Much of the hope for reducing or even eliminating poverty and discrimination in America lies in seeing that racial minorities have access to quality education. Identification of where different peoples are succeeding and failing is essential for planning an educational system that provides quality for all.

Data Analyzed

This report analyzes 1988-1989 citywide test data with respect to racial identification.

Test scores were reported and analyzed in terms of numbers of students of each race in each public school who tested within the top, second, third, and bottom quartiles on each test. The national norm is located between the second and third quartiles. Theoretically a completely "average" school with 100 students would, therefore, place 25 students in each of the top, second, third, and bottom quartiles. In other words 25% of its students would be found in each of the four quartiles.

Most of the following analysis is performed in terms of percent of students above the norm. This was selected as the single best indicator of school performance as it implies the number or percentage of students at a school who are performing "above average." Thus if 45% of a school's students perform in the highest two quartiles, it may be said that 45% are performing "above average."

Data was obtained from the Chicago Public Schools, Department of Research and Evaluation. Testing for the 1988-89 school year was performed in the fall of 1988 (high school) and spring of 1989 (elementary) and constitutes the last systemwide evaluation of students prior to reform implementation. Included are the Iowa Test of Basic Skills (ITBS) test data for grades one through eight and Test of Achievement and Proficiency (TAP) scores for grades nine through twelve. For the ITBS, the general math and reading comprehension tests were selected for analysis as the two tests most descriptive of overall academic ability of children. For the TAP, mathematics and reading were selected for analysis. Data was analyzed in files obtained from the Board of Education which contained for each grade level in each school, the number of students of each race in each quartile.

Data analysis is necessarily discontinuous from the eighth to the ninth grade. The ITBS and TAP tests were normed with different groups in different ways. Test scores reported in terms of national norms are not, therefore, strictly comparable across the two tests. The drop in percentage of students above the norm from eighth to ninth grade observed later in this report may or may not reflect slowed educational growth in the ninth grade.

1. System-wide Overview

1.1 Tremendous differences exist in academic performance across different racial groups.

1.2 Asians and whites perform on average at considerably higher levels than do blacks and Hispanics.

1.3 Most of the difference between white and black or Hispanic performance can be found in the lack of blacks and Hispanics in the high-performing top quartile and the preponderance of blacks and Hispanics in the low-performing lowest quartile. Whites, blacks and Hispanics are more evenly represented among the middle levels of achievement.

Figures 1 and 2 (page 5) present aggregate reading and math scores systemwide by race and grade level for the 1988-1989 school year. The data shows striking differences between performance of different racial groups at every grade level.

At every grade level from one through twelve for both reading and mathematics, whites and Asians score substantially higher as groups than do blacks and Hispanics. At nearly every grade level, Asians and whites had more than 50 percent of children above norms. Clearly for these groups, the Chicago school system has performed at least adequately and is not the worst in the nation.

Asians and Whites

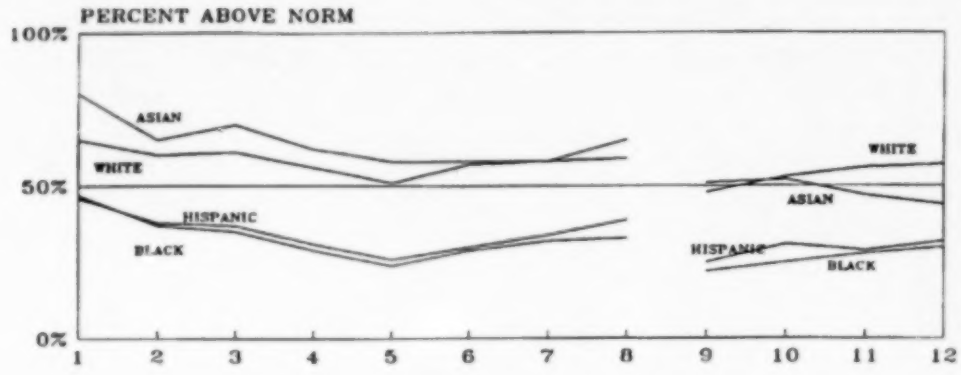
As a group, Asians are the highest performing racial/ethnic group. Asians performed best in mathematics. In no grade between one through eight did fewer than 70 percent of Asian students test above the norm. For all high school grade levels, at least 60 percent of Asians tested above the norm. At no grade level did another racial/ethnic group outperform Asians on mathematics.

Asians also performed well in reading. Asians compiled the top score among all groups in reading for grades one through five, and not until the tenth grade does another racial group place a higher percentage of its students above the national norm. From grades eight through twelve, Asians did experience declining percentages of children above norms. For eleventh and twelfth grades, less than 50 percent of Asians tested above norms in reading

The success of Asians in mathematics is underscored by the presence of 53 percent of all Asian elementary students in the top quarter of performers. Thirty-two percent of Asian students were in the top quarter in reading. Very few Asians fell into the bottom quarter. The eight percent in mathematics and eleven percent in reading who did test

FIGURE 1

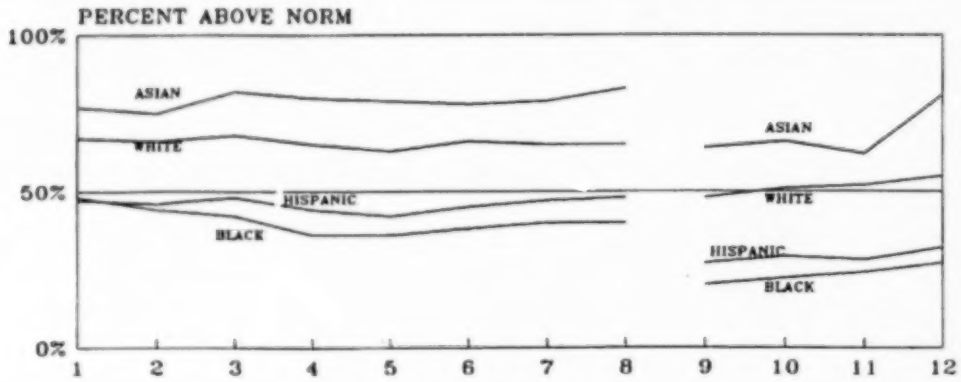
PERCENTAGES OF STUDENTS ABOVE NORMS
READING SCORES BY RACE AND GRADE LEVEL



WHITE	65%	60%	61%	56%	51%	57%	58%	59%	48%	53%	56%	57%
BLACK	47%	37%	35%	29%	24%	29%	32%	33%	22%	25%	28%	30%
HISPANIC	46%	38%	37%	31%	26%	30%	34%	39%	25%	31%	29%	32%
ASIAN	80%	65%	70%	62%	58%	58%	58%	65%	51%	52%	47%	44%

FIGURE 2

PERCENTAGES OF STUDENTS ABOVE NORMS
MATH SCORES BY RACE AND GRADE LEVEL



WHITE	67%	66%	68%	65%	63%	66%	65%	65%	48%	51%	52%	55%
BLACK	48%	44%	42%	36%	36%	38%	40%	40%	20%	22%	24%	27%
HISPANIC	47%	46%	48%	44%	42%	45%	47%	48%	27%	29%	28%	32%
ASIAN	77%	75%	82%	80%	79%	78%	79%	83%	64%	66%	62%	81%

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in the lowest quartile are likely recent immigrants with severe language problems. Whether these students should even be tested has long been a matter of dispute.

Many Asian children live in homes where English is a second language. As the test data suggests, they record their highest reading scores relative to other groups in the first grade and decline from there as the English needed to perform well in school becomes increasingly complex. Mathematics requires far less English skill for mastery and Asian students tend to excel in it throughout their academic careers.

White students as a group have not performed as well as Asians but are generally at or above grade level norms. At every grade from one through eight in mathematics, between 60 percent and 70 percent of white children tested above the norm. Although they slipped slightly below in ninth grade, between 50 percent and 60 percent of whites were above the norm in grades ten through twelve.

Whites performed less well in reading than in mathematics, although only for ninth grade were less than 50 percent of tested students beneath the grade level norm. As with each other racial/ethnic group, white children performed best in first grade, with approximately 65 percent of children testing above norm. This declined to 51 percent in fifth grade and then climbed back to nearly 60 percent by the eighth.

Like the Asians, whites appear disproportionately in the top quartile and relatively few are found in the lowest quartile. Only 14 percent of whites tested in the bottom quartile in mathematics or reading.

All white children attend schools in integrated settings; many in magnet schools or programs. These data show that in these schools, educational opportunities exist such that children can perform at or above national averages. These schools cannot be properly called the worst in the nation.

Hispanics and Blacks

Whereas Asian and white groups followed similar performance patterns above the norm, Hispanics and blacks paralleled one another below norms. Three observations can readily be made:

1) For both mathematics and reading, at no grade level did either blacks or Hispanics have as many as 50 percent of students at or above the grade level test norm.

2) Black and Hispanic groups never varied by more than ten percent from one another in terms of numbers of children above the test norm.

3) Only in first grade mathematics and first grade reading did blacks as a group outscore Hispanics, and in those cases by only one percentage point.

As with Asians and whites, blacks and Hispanics appeared to perform more strongly in mathematics than in reading. For first through eighth grades, Hispanics averaged between 40 percent and 50 percent of children above the norm in mathematics while blacks generally averaged between 35 percent and 45 percent above the norm. Both blacks and Hispanics tended toward the middle two quartiles. Only fifteen percent of blacks and seventeen percent of Hispanics managed to reach the top quartile in mathematics.

Reading scores varied far more from grade to grade. Both blacks and Hispanics had approximately 46 percent of children score above the norm in first grade reading. However by fifth grade, less than 25 percent of blacks and less than 30 percent of Hispanics reached grade level norms. By eighth grade these percentages recovered to around 35 percent. Only ten percent of blacks and Hispanics tested in the top quartile in reading.

For both reading and mathematics, high school test scores appear truly dismal for both Hispanic and black students. Less than 25 percent of black ninth graders read at the national norm while only a few more Hispanics managed to do so. Scores rose over the high school years but peak at a very low level. Hispanic and black seniors averaged only 30 percent above the norm in reading. Fewer than 30 percent of Hispanic and black seniors averaged above the norm in mathematics.

The overall pattern of failure of blacks and Hispanics to test at the national norm is as distinctive as the white and Asian pattern of test results above the norm.

These differences arise because whites are found disproportionately in each of the higher two quartiles and blacks and Hispanics in the lower two at almost every grade level. However, the biggest differences appear in the top and bottom quartiles. Two thirds of the difference between white and black or Hispanic performance occurs because blacks and Hispanics generally fail to test in the top quartile and are found in extremely high numbers in the bottom quartile. Table 2 provides percentage differences by quartile and grade level for whites, blacks and Hispanics. For almost every grade level, white-black and white-Hispanic differences in the middle two quartiles vary by ten or fewer percentage points. However the percentage of all whites in the top quartile exceeds the percentage of all blacks in the top quartile by an average of 20 percent over all grade levels. Conversely, the percentage of all black children who are found in the lowest quartile exceeds by an average of 18 percent the percentage of all whites who may be found in the lowest quartile.

Racial disparity occurs, therefore, because blacks and Hispanics are underrepresented among high achievers while whites have managed to escape the bottom. For blacks and Hispanics, the Chicago schools produce about as many students around the norm as might be expected. However, there is a serious failure to produce high achieving black and Hispanic students, and many more are found at the very bottom than should be.

When all grade levels, all racial groups, and both tests are considered together, a single overall pattern seems to emerge that appears essentially common to white, black and Hispanic racial/ethnic groups. Scores are relatively high for all groups on both tests in first grade. They then fall, particularly in reading, to the fifth grade. From fifth through eighth grades scores tend to improve steadily. At the high school level, scores begin at relatively low levels and improve through the twelfth grade.

This data suggests that something happens to Chicago students which is experienced in common, albeit with differing levels of intensity, that causes each racial group to experience similar rises and falls of test scores. Recent research suggests that the "fourth grade slump" is more statistical artifact than real and is due to the misleading way in which grade level equivalents allow test scores to be compared from year to year.[3] Achievement growth rates probably decline gradually from first through eighth grades. The seeming drop in scores from eighth to ninth grade is attributable to different test norms making comparison of eighth and ninth grade achievement inappropriate from this data.

The increasing percentage of students above norms observed from ninth through twelfth grade is also somewhat illusory. Dropout rates accelerate from tenth through twelfth grades, meaning that the lowest test scorers leave the system. The percentage of adequately performing students therefore increases over those years, although the quality of the education may not, and the absolute number of adequate performers does not.

Three broad factors can be tested for their possible roles in creating disparate achievement outcomes across different racial groups:

Differences in enrollment patterns and program types (page 9),
Differences in economic background (page 13),
Differences children may have brought with them from pre-school (page 14).

[3] E. Matthew Schulz, LinJun Shen, and Benjamin D. Wright, "An Equal-Interval Scale for Studying Reading Growth." Paper presented at the American Educational Research Association annual meeting, Boston, April 16, 1990.

2. *Different School Program Types*

2.1 Students from all three major racial/ethnic groups who attend magnet programs perform significantly better on average than do students who attend schools without programs.

2.2 Blacks in elementary schools with competitive entrance requirements perform at extremely high levels, but lag somewhat behind whites and Hispanics in these same schools.

2.3 Blacks, whites, and Hispanics all tend to perform at inadequate levels in vocational and general high schools. All three groups perform at high levels in academically-oriented high schools. White students consistently outscore black and Hispanic students in most high schools.

2.4 Black reading and mathematics scores are extremely low in general high schools.

For each of the three largest racial/ethnic groups, blacks, Hispanics, and whites, percentages of students above norm is highly associated with the type of school they attend. The more academic the school focus, the higher the percentage of students found above national norms. In explaining overall differences between white, black, and Hispanic performance systemwide, it is important to note that a far higher proportion of whites attend Options for Knowledge academically-oriented programs than do blacks or Hispanics. One would therefore expect this to be reflected in higher white performance systemwide. Analysis below shows, however, that even within various school program types, racial achievement disparity persists. Thus the preponderance of whites in these program does not wholly explain achievement disparity between racial groups.

Elementary Schools

To test the effect of various program types on racial group achievement disparity, Chicago's elementary schools were divided into four programmatic categories reflective of similar academic treatment of students:

1. Magnet schools with academically-oriented programs[4]
2. Academic or Scholastic academies[5]
3. Schools which have a specialty program serving some of its students [6]

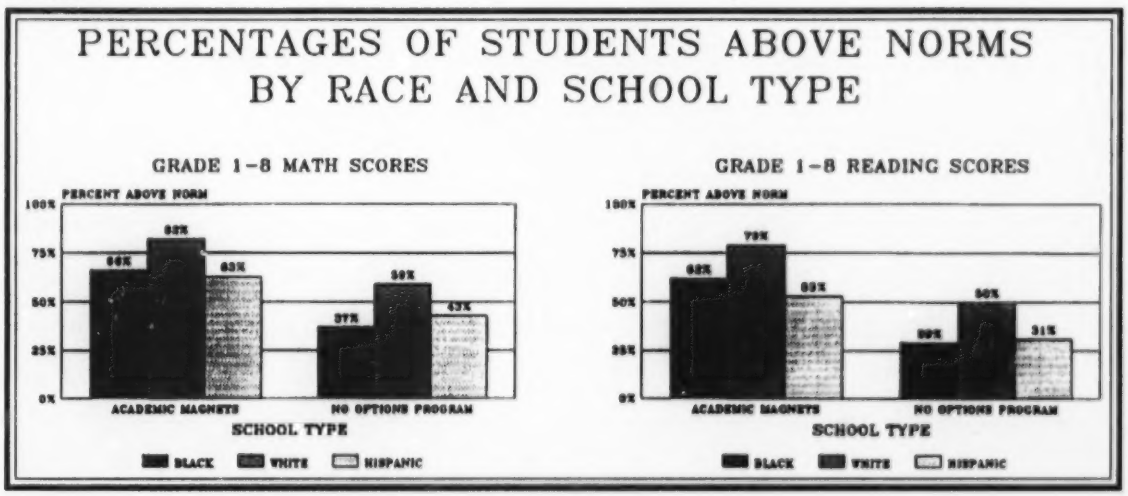
[4] These include gifted centers, academic magnets and classical schools.
[5] All students have in common a "back to basics" curriculum. Scholastic and community academies differ in whether attendance areas are general or local.
[6] Neighborhood schools with a specialty program are excluded from analysis because the include students who participate in enriching programs as well as students who do not.

4. Schools with no distinctive academic program as defined by Options for Knowledge.[7]

Racial/ethnic performance disparity persisted across all four basic school types. For all school types, whites and Asians outscored blacks and Hispanics.

The greatest difference in performance level for all racial groups was between the two school types having the most extreme differences in program, the academically-oriented magnets and schools with no academic programs. As Figure 3 shows, for both reading and mathematics, for all racial groups, academically-oriented magnets averaged more than 50% of students above the norm. In mathematics, all groups averaged more than 60 percent of students above the norm.

FIGURE 3



Performance in schools without special academic programs was very different. For these schools as a group, only white children had more than 50 percent of children above national norms. Blacks and Hispanics performed miserably in these schools, averaging around 40 percent of children above the norm in mathematics and only 30 percent above the norm in reading.

In both types of schools for both mathematics and reading, whites averaged approximately fifteen to twenty percent more students above norms than did blacks or Hispanics.

When schools with selective admission requirements, the classical schools and regional gifted centers, are selected from the academic magnets, some of the differences between racial groups remain. White students averaged 96 percent and 95 percent of students above the norm in mathematics and reading respectively. Hispanics performed nearly

[7] These schools have no Options for Knowledge programming and are generally neighborhood schools. Most do have supplementary programs funded through state and federal categorical funds which are remedial in nature.

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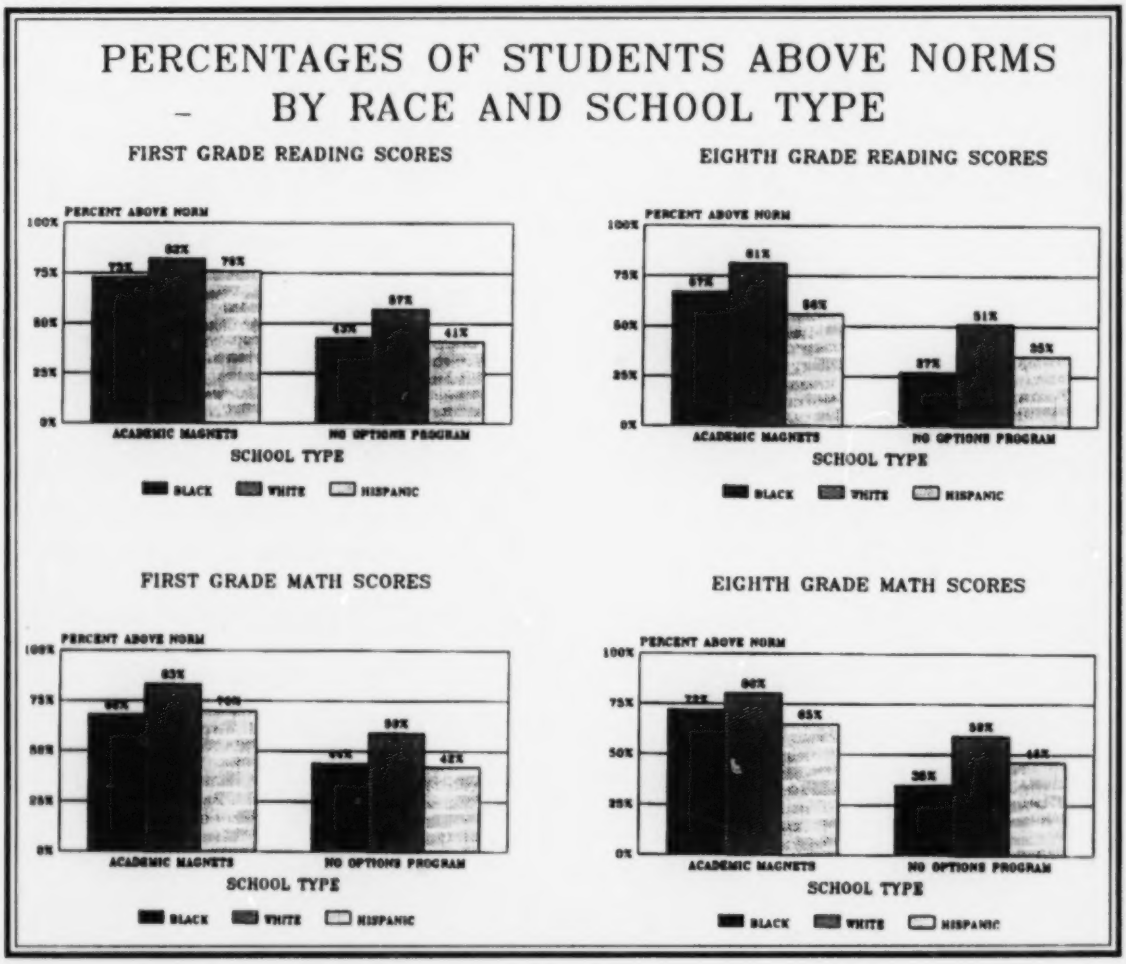
as well in these types of schools, testing at 92 percent and 88 percent above norms in mathematics and reading. Although black students in the competitive schools performed far better than black students in other types of schools, they still lagged somewhat behind their white counterparts, averaging 74 percent above the mean in mathematics and 71 percent in reading.

As Figure 4 demonstrates, these basic differences persisted at different grade levels. As grade level progressed, the difference between white and black scores became greater. This was particularly true of the non-program schools, although it clearly occurs in the magnet schools in reading. As children become older, greater differences appear between them in academic accomplishment. Children and programs appear to perform most similarly in the early grades.

FIGURE 4



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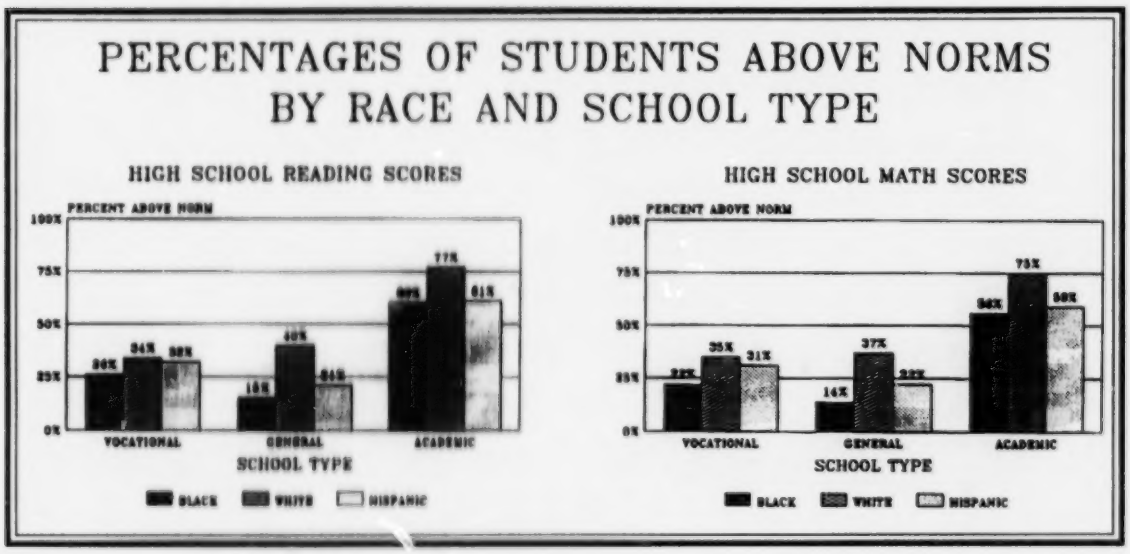
High Schools

High schools were grouped into three major categories: vocational high schools, high schools with a specific academic focus, and general high schools. All racial groups recorded their highest scores in academic high schools (see Figure 5). In both reading and mathematics, more than 70 percent of white students tested above the norm. Blacks and Hispanics followed by approximately 16 percent each in both reading and mathematics.

All racial groups performed poorly in vocational and general high schools. Black students in particular struggled in general high schools, which enroll a large majority of all black students. Only 15 percent of blacks scored above the norm in reading and only 16 percent in mathematics.

FIGURE 5



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3. Income

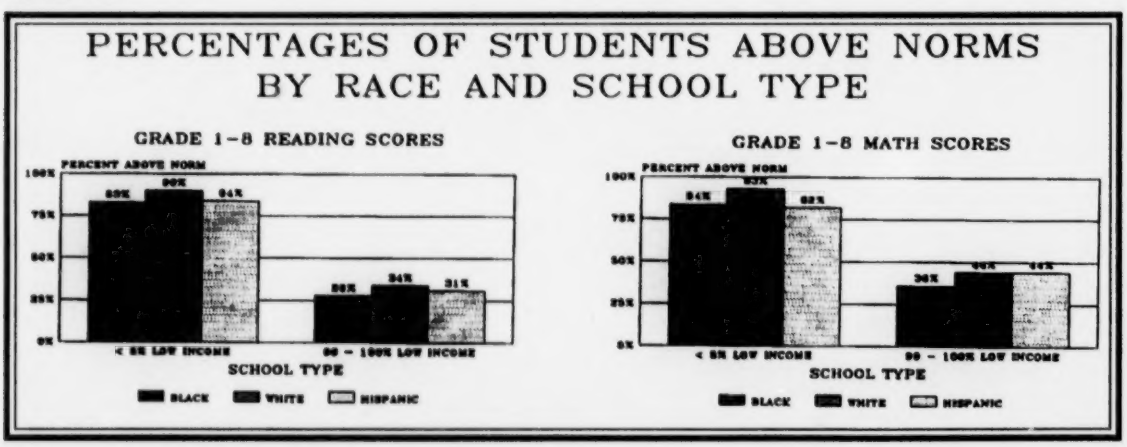
3.1 Whites tend to score slightly higher than blacks whether students are above or below the poverty line.

3.2 For blacks, whites, and Hispanics at all grade levels, students in non-academic schools with few low income students performed better than students in non-academic schools exclusively made up of low income students.

To observe the possible effect of income level on racial disparity in school achievement, schools with extremely high and low numbers of impoverished students were studied. Figure 6 below compares test performance by race in the three elementary schools with five percent or fewer low income students with the 95 elementary schools with 99 percent or more low income students. [8]

The data shows that in schools with the most and fewest low income students in both math and reading, slightly more whites tested above the norm on standardized tests than did blacks. Differences between whites and Hispanics were smaller and, because of the very small numbers of Hispanics observed in the non-poverty schools, must be regarded as insignificant. The very small differences observed between whites and blacks suggest that only rarely do racial/ethnic characteristics define differences between achievement level among children of similar economic level.[9]

FIGURE 6



[8] Income level is defined as the percentage of students in a school who have declared eligibility for federally subsidized lunches. Isolating the effects of income on academic performance is extremely difficult using school-level data. Many Chicago schools are composed entirely of low income people but none are composed entirely of children who are not low income. This makes it impossible to know precisely the performance of non-poverty students. Comparing income levels of high schools based upon eligibility for federally-provided school lunches is of little value because the error rate in registration for the program is high, thereby introducing large errors into any statistical analysis.

[9] Because test scores analyzed represent the universe of students within a select population, differences between subgroups within these schools cannot properly be generalized to the entire school system as they might be were this truly a sample. Were the data analyzed a sample, black - white achievement differences within income strata would attain statistical significance at the .01 level for both mathematics and reading. White - Hispanic differences would not be statistically significant

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4. Pre-School Effects

4.1 White and Asian test scores exceed black and Hispanic by significant amounts in first grade and the difference increases somewhat to fourth grade.

Do young children bring the differences to school with them in the first grade that result in disparity of achievement scores between different racial groups, or are differences in some way acquired after first grade?

In both reading and mathematics, Table 2 (see Appendix) shows that blacks and whites perform most similarly in the first grade. In the first grade, an 18 percent difference exists between the percentage of whites testing above the norm in reading (65 percent) and the percentage of blacks (47 percent). By the fourth grade, however, that gap has expanded to 27 percent (56 percent of whites, 29 percent of blacks). The average difference between black and white children across all quartiles in first grade reading is nine percent. Performance differences increase through the fourth grade to an average of fourteen percent. These differences generally persist from fourth through the twelfth grade. In mathematics the increase in the black - white performance is from ten to fourteen percent from first to fourth grade.

The same pattern exists in reading when whites and Hispanics are compared (three percent increase in disparity) and in mathematics when blacks and Hispanics are compared (four percent increase in disparity). This suggests that the white educational experience is most similar to that of blacks and Hispanics in first grade and progressively differs with age.

The expanding gap between black and white reading performance persists across different school types and can be found both in academic magnet schools and schools without special programs. (See Figure 3) In mathematics, the gap narrows in the academic magnets and increases in schools without special programs. The white - Hispanic gap increases considerably in the academic magnets in reading but remains constant in mathematics.

These findings suggest that something in the educational process between grades one and four causes black and Hispanic students to lose ground to whites in reading, and blacks to lose ground to whites in mathematics. This finding is consistent with previous research performed on a sample of Chicago students in integrated schools which found a relationship between reading learning rates and race from first through fourth grades but not third through sixth of fifth through eighth.[10] If differences are caused by differential effect of teaching methods upon white and black or Hispanic

[10] John Q. Easton, Albert Bennett and Lillian Seymore, "The Influences of Schooltype, Race, and Economic Background on Reading Achievement Gains." Paper presented at the American Educational Research Association, Washington, D.C. (1987).

children, then it is an effect that occurs primarily in the second, third, and fourth grades, and then seems to disappear.

This evidence is also consistent with findings that early childhood programs raise disadvantaged children's performance levels, particularly in early grades, but that performance may fall in higher grades in the absence of continuing special attention. The compensatory effects of Chicago's early childhood programs may well be much stronger than effects of programs funded through State or Federal Chapter I monies. When children take their first standardized test in first grade, nearly 50 percent of black and Hispanic children test at the national norm.

TABLE 1

PERCENT OF STUDENTS IN NATIONAL NORM QUARTILES BY RACE AND GRADE LEVEL

ITBS READING

FIRST GRADE

	TOTAL STUDENTS	QUARTILE TOP	SECOND	THIRD	LOWEST
WHITE	3,763	36%	29%	23%	12%
BLACK	19,046	19%	28%	32%	21%
HISPANIC	4,684	16%	30%	34%	20%
ASIAN	613	43%	37%	15%	5%
OTHER	160	17%	33%	31%	19%

SECOND GRADE

WHITE	3,611	33%	27%	25%	14%
BLACK	18,605	14%	23%	35%	29%
HISPANIC	5,120	12%	26%	36%	26%
ASIAN	709	33%	32%	28%	7%
OTHER	156	19%	21%	39%	21%

THIRD GRADE

WHITE	3,744	32%	29%	22%	16%
BLACK	19,817	10%	25%	32%	33%
HISPANIC	6,304	11%	26%	32%	31%
ASIAN	763	36%	34%	19%	11%
OTHER	145	18%	28%	26%	28%

FOURTH GRADE

WHITE	3,554	23%	33%	27%	17%
BLACK	18,177	6%	23%	35%	37%
HISPANIC	6,685	7%	24%	34%	35%
ASIAN	714	24%	38%	24%	14%
OTHER	134	10%	22%	30%	38%

FIFTH GRADE

WHITE	3,289	25%	26%	33%	16%
BLACK	17,655	6%	18%	39%	31%
HISPANIC	6,651	6%	20%	41%	33%
ASIAN	673	28%	30%	30%	12%
OTHER	143	10%	18%	27%	46%

SIXTH GRADE

WHITE	3,246	26%	31%	28%	15%
BLACK	16,050	7%	22%	38%	34%
HISPANIC	6,694	7%	23%	37%	33%
ASIAN	657	31%	27%	25%	18%
OTHER	91	12%	30%	28%	31%

SEVENTH GRADE

WHITE	3,207	24%	34%	31%	11%
BLACK	14,909	7%	25%	44%	24%
HISPANIC	6,580	8%	26%	41%	25%
ASIAN	710	27%	31%	28%	16%
OTHER	114	14%	18%	13%	54%

EIGHTH GRADE

WHITE	3,257	28%	31%	31%	10%
BLACK	14,631	9%	24%	44%	23%
HISPANIC	6,234	12%	27%	39%	22%
ASIAN	754	35%	30%	24%	11%
OTHER	68	18%	27%	32%	24%

ITBS MATHEMATICS

FIRST GRADE

	TOTAL STUDENTS	QUARTILE TOP	SECOND	THIRD	LOWEST
WHITE	3,763	43%	24%	15%	18%
BLACK	19,046	23%	25%	19%	33%
HISPANIC	4,684	21%	26%	20%	33%
ASIAN	613	50%	27%	10%	13%
OTHER	160	27%	29%	21%	24%

SECOND GRADE

WHITE	3,611	41%	25%	18%	16%
BLACK	18,605	20%	24%	24%	32%
HISPANIC	5,120	21%	25%	24%	30%
ASIAN	709	54%	21%	14%	11%
OTHER	156	25%	24%	26%	24%

THIRD GRADE

WHITE	3,744	43%	25%	17%	15%
BLACK	19,817	18%	24%	24%	34%
HISPANIC	6,304	21%	27%	23%	28%
ASIAN	763	60%	22%	10%	8%
OTHER	145	25%	26%	21%	29%

FOURTH GRADE

WHITE	3,554	34%	31%	22%	13%
BLACK	18,177	11%	25%	32%	31%
HISPANIC	6,685	14%	30%	30%	26%
ASIAN	714	48%	32%	13%	7%
OTHER	134	13%	20%	25%	42%

FIFTH GRADE

WHITE	3,289	33%	30%	23%	14%
BLACK	17,655	11%	25%	34%	30%
HISPANIC	6,651	13%	29%	33%	24%
ASIAN	673	50%	29%	13%	8%
OTHER	143	9%	17%	21%	53%

SIXTH GRADE

WHITE	3,246	36%	30%	21%	13%
BLACK	16,050	12%	26%	30%	31%
HISPANIC	6,694	16%	29%	30%	25%
ASIAN	657	54%	24%	15%	7%
OTHER	91	13%	32%	23%	32%

SEVENTH GRADE

WHITE	3,207	33%	32%	24%	11%
BLACK	14,909	12%	28%	33%	26%
HISPANIC	6,580	15%	32%	30%	22%
ASIAN	710	51%	28%	13%	7%
OTHER	114	8%	18%	20%	54%

EIGHTH GRADE

WHITE	3,257	37%	28%	25%	11%
BLACK	14,631	15%	25%	34%	26%
HISPANIC	6,234	20%	28%	30%	21%
ASIAN	754	60%	23%	10%	7%
OTHER	68	22%	24%	22%	32%

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TABLE 1 CONTINUED

TAP READING

NINTH GRADE

	TOTAL STUDENTS	QUARTILE TOP	SECOND	THIRD	LOWEST
WHITE	3,161	26%	22%	32%	20%
BLACK	15,977	7%	15%	39%	39%
HISPANIC	6,333	8%	17%	38%	37%
ASIAN	778	29%	22%	27%	22%
OTHER	59	14%	15%	34%	37%

TENTH GRADE

WHITE	2,851	29%	24%	27%	21%
BLACK	14,112	9%	18%	34%	42%
HISPANIC	4,764	11%	20%	33%	37%
ASIAN	856	32%	20%	21%	27%
OTHER	36	25%	14%	31%	31%

ELEVENTH GRADE

WHITE	2,511	29%	27%	25%	20%
BLACK	11,034	9%	19%	35%	38%
HISPANIC	3,946	9%	20%	33%	38%
ASIAN	806	26%	19%	22%	33%
OTHER	75	52%	23%	12%	13%

TWELFTH GRADE

WHITE	2,510	31%	26%	25%	18%
BLACK	9,538	10%	20%	33%	36%
HISPANIC	3,256	10%	22%	32%	36%
ASIAN	814	24%	20%	23%	33%
OTHER	73	48%	30%	10%	12%

TAP MATHEMATICS

NINTH GRADE

	TOTAL STUDENTS	QUARTILE TOP	SECOND	THIRD	LOWEST
WHITE	3,167	21%	27%	28%	25%
BLACK	16,162	4%	16%	35%	45%
HISPANIC	6,351	7%	20%	36%	38%
ASIAN	778	35%	29%	21%	15%
OTHER	58	10%	17%	38%	35%

TENTH GRADE

WHITE	2,861	24%	27%	29%	20%
BLACK	14,295	5%	17%	37%	40%
HISPANIC	4,784	8%	21%	38%	33%
ASIAN	860	40%	26%	22%	12%
OTHER	35	14%	26%	37%	23%

ELEVENTH GRADE

WHITE	2,515	25%	27%	29%	19%
BLACK	11,152	7%	17%	36%	41%
HISPANIC	3,952	9%	19%	36%	36%
ASIAN	802	42%	20%	23%	16%
OTHER	74	60%	19%	11%	11%

TWELFTH GRADE

WHITE	2,506	32%	23%	23%	22%
BLACK	9,607	9%	18%	33%	40%
HISPANIC	3,259	12%	20%	32%	36%
ASIAN	814	44%	23%	21%	12%
OTHER	72	67%	14%	7%	13%

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TABLE 2

DIFFERENCES BETWEEN PERCENTAGES OF RACIAL GROUPS FOUND IN QUARTILE

READING

MATHEMATICS

DIFFERENCES BETWEEN WHITES AND BLACKS

GRADE LEVEL	QUARTILE TOP	2	3	LOW	AVERAGE QUARTILE DIFFERENCE	GRADE LEVEL	QUARTILE TOP	2	3	LOW	AVERAGE QUARTILE DIFFERENCE
1	17%	1%	9%	9%	9%	1	20%	1%	4%	15%	10%
2	19%	4%	10%	15%	12%	2	21%	1%	6%	16%	11%
3	22%	4%	10%	17%	13%	3	25%	1%	7%	19%	13%
4	17%	10%	8%	20%	14%	4	23%	6%	10%	18%	14%
5	19%	8%	6%	15%	12%	5	22%	5%	11%	16%	14%
6	19%	9%	10%	19%	14%	6	24%	4%	9%	18%	14%
7	17%	9%	13%	13%	13%	7	21%	4%	9%	15%	12%
8	19%	7%	13%	13%	13%	8	22%	3%	9%	15%	12%
9	19%	7%	7%	19%	13%	9	17%	11%	7%	20%	14%
10	20%	8%	7%	21%	14%	10	19%	10%	8%	20%	14%
11	20%	8%	10%	18%	14%	11	18%	10%	7%	22%	14%
12	21%	6%	8%	18%	13%	12	23%	5%	10%	18%	14%

NOTE: Difference scores are calculated by subtracting the percentage of black students found in each grade level quartile from the percentage of white students found in each quartile.

DIFFERENCE BETWEEN WHITES AND HISPANICS

GRADE LEVEL	QUARTILE TOP	2	3	LOW	AVERAGE QUARTILE DIFFERENCE	GRADE LEVEL	QUARTILE TOP	2	3	LOW	AVERAGE QUARTILE DIFFERENCE
1	20%	1%	11%	8%	10%	1	22%	2%	5%	15%	11%
2	21%	1%	11%	12%	11%	2	20%	0%	6%	14%	10%
3	21%	3%	10%	15%	12%	3	22%	2%	6%	13%	11%
4	16%	9%	7%	18%	13%	4	20%	1%	8%	13%	11%
5	19%	6%	8%	17%	13%	5	20%	1%	10%	10%	10%
6	19%	8%	9%	18%	14%	6	20%	1%	9%	12%	11%
7	16%	8%	10%	14%	12%	7	18%	0%	6%	11%	9%
8	16%	4%	8%	12%	10%	8	17%	0%	5%	10%	8%
9	18%	5%	6%	17%	12%	9	14%	7%	8%	13%	11%
10	18%	4%	6%	16%	11%	10	16%	6%	9%	13%	11%
11	20%	7%	8%	18%	13%	11	16%	8%	7%	17%	12%
12	21%	4%	7%	18%	13%	12	20%	3%	9%	14%	12%

NOTE: Difference scores are calculated by subtracting the percentage of hispanic students found in each grade level quartile from the percentage of white students found in each quartile.

DIFFERENCES BETWEEN BLACK AND HISPANIC

GRADE LEVEL	QUARTILE TOP	2	3	LOW	AVERAGE QUARTILE DIFFERENCE	GRADE LEVEL	QUARTILE TOP	2	3	LOW	AVERAGE QUARTILE DIFFERENCE
1	3%	2%	2%	1%	2%	1	2%	1%	1%	2%	2%
2	2%	3%	1%	3%	2%	2	1%	1%	0%	6%	2%
3	1%	1%	0%	2%	1%	3	3%	3%	1%	5%	3%
4	1%	1%	1%	2%	1%	4	3%	5%	2%	6%	4%
5	0%	2%	2%	2%	2%	5	2%	4%	1%	6%	3%
6	0%	1%	1%	1%	1%	6	4%	3%	0%	4%	3%
7	1%	1%	3%	1%	2%	7	3%	4%	3%	5%	4%
8	3%	3%	5%	1%	3%	8	5%	3%	4%	7%	5%
9	1%	2%	1%	2%	2%	9	3%	4%	1%	7%	4%
10	2%	4%	1%	5%	3%	10	3%	4%	1%	5%	3%
11	0%	1%	2%	0%	1%	11	2%	2%	0%	4%	2%
12	0%	2%	1%	0%	1%	12	3%	2%	1%	4%	3%

NOTE: Difference scores are calculated by subtracting the percentage of black students found in each grade level quartile from the percentage of hispanic students found in each quartile.

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TABLE 3

TEST DATA BY RACE AND SCHOOL TYPE

READING

	SCHOOL TYPE	BLACK TOTAL ABOVE NORM	BLACK TOTAL STUDENTS	BLACK PCT ABOVE NORM	WHITE TOTAL ABOVE NORM	WHITE TOTAL STUDENTS	WHITE PCT ABOVE NORM	HISPANIC TOTAL ABOVE NORM	HISPANIC TOTAL STUDENTS	HISPANIC PCT ABOVE NORM
ELEMENTARY GRADES COMBINED	COMPETITIVE	939	1,321	71%	700	735	95%	213	243	88%
	ACADEMIC MAGNETS	4,984	7,985	62%	2,924	3,720	79%	1,737	3,258	53%
	ACADEMIES	4,272	10,495	41%	673	881	76%	885	1,859	48%
	NO OPTIONS PROG.	29,821	101,357	29%	6,735	13,409	50%	11,316	36,521	31%
GRADE 1	ACADEMIC MAGNETS	697	954	73%	415	504	82%	194	256	76%
	NO OPTIONS PROG.	6,171	14,425	43%	1,052	1,837	57%	1,443	3,488	41%
GRADE 8	ACADEMIC MAGNETS	643	953	67%	366	452	81%	288	511	56%
	NO OPTIONS PROG.	2,729	9,924	27%	808	1,572		1,649	4,655	35%
HIGH SCHOOL	VOCATIONAL	2,372	8,986	26%	104	303	34%	234	728	32%
	GENERAL	4,976	32,346	15%	2,644	6,667	40%	3,073	14,422	21%
	ACADEMIC	5,538	9,263	60%	3,097	4,048	77%	1,916	3,123	61%

MATHEMATICS

	SCHOOL TYPE	BLACK TOTAL ABOVE NORM	BLACK TOTAL STUDENTS	BLACK PCT ABOVE NORM	WHITE TOTAL ABOVE NORM	WHITE TOTAL STUDENTS	WHITE PCT ABOVE NORM	HISPANIC TOTAL ABOVE NORM	HISPANIC TOTAL STUDENTS	HISPANIC PCT ABOVE NORM
ELEMENTARY GRADES COMBINED	COMPETITIVE	977	1,321	74%	705	735	96%	224	243	92%
	ACADEMIC MAGNETS	5,202	7,838	66%	3,034	3,705	82%	2,049	3,250	63%
	ACADEMIES	5,137	10,495	49%	725	881	82%	1,056	1,859	57%
	NO OPTIONS PROG.	37,510	100,303	37%	7,887	13,414	59%	15,892	36,525	43%
GRADE 1	ACADEMIC MAGNETS	652	954	68%	416	504	83%	178	256	70%
	NO OPTIONS PROG.	6,343	14,425	44%	1,085	1,837	59%	1,480	3,488	42%
GRADE 8	ACADEMIC MAGNETS	682	953	72%	363	452	80%	333	511	65%
	NO OPTIONS PROG.	3,495	9,924	35%	925	1,572	59%	2,153	4,655	46%
HIGH SCHOOL	VOCATIONAL	1,954	9,025	22%	107	308	35%	226	730	31%
	GENERAL	4,509	32,823	14%	2,485	6,674	37%	3,117	14,460	22%
	ACADEMIC	5,210	9,302	56%	3,032	4,051	75%	1,846	3,130	59%

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TABLE 4

TEST DATA BY RACE AND INCOME LEVEL

READING

SCHOOL PERCENT LOW INCOME	BLACK TOTAL ABOVE NORM	BLACK TOTAL STUDENTS	BLACK PCT ABOVE NORM	WHITE TOTAL ABOVE NORM	WHITE TOTAL STUDENTS	WHITE PCT ABOVE NORM	HISPANIC TOTAL ABOVE NORM	HISPANIC TOTAL STUDENTS	HISPANIC PCT ABOVE NORM
< 5%	336	405	83%	412	458	90%	32	38	84%
99 - 100%	9,728	35,150	28%	344	1,011	34%	2,705	8,863	31%

MATHEMATICS

SCHOOL PERCENT LOW INCOME	BLACK TOTAL ABOVE NORM	BLACK TOTAL STUDENTS	BLACK PCT ABOVE NORM	WHITE TOTAL ABOVE NORM	WHITE TOTAL STUDENTS	WHITE PCT ABOVE NORM	HISPANIC TOTAL ABOVE NORM	HISPANIC TOTAL STUDENTS	HISPANIC PCT ABOVE NORM
< 5%	339	405	84%	426	458	93%	31	38	82%
99 - 100%	12,531	35,053	36%	447	1,011	44%	3,904	8,863	44%

NOTE: "Low Income" status is defined by eligibility for federally subsidized free lunch.

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